Idaho Technology Authority (ITA)

ENTERPRISE STANDARDS – S4000 – INFORMATION AND DATA

Category: S4262 –Active Faults Layer Standard

I.   DEFINITION

See ITA Guideline G105 (ITA Glossary of Terms) for definitions.

II. RATIONALE

A statewide Active Fault layer and data standard, which is part of the Hazards data theme, is a critical source of information for resource land management, community and economic development needs, infrastructure maintenance, research and analysis, business development, public safety, and more. This standard provides the active fault data for Idaho. When implemented, it will enable access to geometry and attribute information about active faults in Idaho which will increase interoperability between automated geographic information systems, and enable sharing and efficient transfer of information for aggregation. Further, it will encourage partnerships between government, the private sector, and the public to avoid duplication of effort and ensure effective management of information.

III. APPROVED STANDARD(S)

See Attachment

IV. APPROVED PRODUCTS(S)

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

V. JUSTIFICATION

A statewide Active Fault dataset is a critical source of information as stated under 'II Rationale' in this standard. A data exchange standard supports the use and dissemination of the data, will improve collaboration, and encourage use of this dataset.

VI. TECHNICAL AND IMPLEMENTATION CONSIDERATIONS

Any GIS Software, either desktop or online, capable of ingesting and displaying Open Geospatial Consortium (OGC) Web Map Standard (WMS) services.

VII. EMERGING TRENDS AND ARCHITECTURAL DIRECTIONS

Data will be shared in accordance with ITA Standard S4250 –Geographic Information System (GIS) Data Sharing Standards.

VIII. PROCEDURE REFERENCE

The format, content, and development of this standard adhere to ITA Policy P5030 - Framework Standards, ITA Standard S4250 - Data Sharing Standards and ITA Standard S4220 - Geospatial Metadata.

IX. REVIEW CYCLE

Review will occur at least annually.

X. CONTACT INFORMATION

For more information, contact the ITA Staff at (208) 605-4064.

REVISION HISTORY

07/20/2023 – Standard Presented to the IGC-EC

STATE OF IDAHO

Idaho Active Faults Data Standard

Part of the Hazards Theme

Version 1
Effective July 20, 2023

Developed by the Hazards Technical Working Group

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CONTENTS

1. Introduction to the Active Fault Data Standard

A statewide Active Fault layer is a critical source of information for resource land management, community and economic development needs, infrastructure maintenance, research and analysis, business development, public safety, and more. This standard provides the active fault data for centralized access and stewardship information. This standard applies to the Active Fault element of The Idaho Map (TIM). When implemented, it will enable access to geometry and attribute information about active faults in Idaho. It will increase interoperability between automated geographic information systems and enable sharing and efficient transfer of information for aggregation. Further, it will encourage partnerships between government, the private sector, and the public to avoid duplication of effort and ensure effective management of information resources.

An Active Fault Standard is intended to facilitate integration and sharing of up-to-date Active Fault data and enhance the dissemination and use of Active Fault information. This standard does not instruct on how Active Fault databases are designed for internal use.

This standard was developed by the Hazards Technical Working Group, a subgroup of the Idaho Geospatial Council – Executive Committee (IGC-EC). This standard will be reviewed on an annual basis and updated as needed.

1.1. Mission and Goals of the Standard

The Active Fault Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the Active Fault Framework. The Standard will communicate with, and may have similar attributes to, other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial Active Fault data to contribute to Active Fault Framework.

The Active Fault Framework will be appropriately shared and beneficial to all. The fields in the Active Fault Data Exchange Standard will be general enough to incorporate basic information without requiring major changes in internal data models. This standard allows for expansion to a more complex data structure and schema.

1.2. Relationship to Existing Standards

This Active Fault Exchange Standard relates to existing standards as follows:

- No other standards apply.

1.3. Description of the Standard

This standard describes the vision and geospatial data structure of a Active Fault Framework in the state of Idaho. This standard is devised to be:

- Simple, easy to understand, and logical
- Uniformly applicable, whenever possible
- Flexible and capable of accommodating future expansions
- Dynamic in terms of continuous review

1.4. Applicability and Intended Uses

This standard applies to the Active Fault element of the Hazards theme of The Idaho Map (TIM).

When implemented this standard will enable access and exchange of the data. A predictable standard will support data collection, improve data collaboration, help identify and report errors and allow agencies to incorporate this data into their own data products.

This standard does not consider data sharing agreements, contracts, transactions, privacy concerns, or any other issues relating to the acquisition and dissemination of Active Fault data.

1.5. Standard Development Process

The Hazards Technical Working Group is a voluntary group of private, city, county, tribal, state, and federal representatives. In 2023, the Active Fault Lead began developing the standard for the Active Fault Framework using the standard development automation tools developed by the IGC-EC to generate the first draft of the Standard. This standard was then reviewed and edited by the members of the Hazards Technical Working Group.

After initial development, the draft standard document was shared with the Idaho Geospatial Council Executive Committee (IGC-EC) and the Idaho Geospatial Council (IGC) in accordance with the review and approval process described in ITA Policy P5030 Framework Standards Development.

1.6. **Maintenance of the Standard**

This standard will be revised on an annual basis as needed and in accordance with the ITA Policy P5030 Framework Standards Development.

2. **Body of the Standard**

2.1. **Scope and Content**

The scope of the Active Fault Data Exchange Standard is to describe a statewide layer which identifies the physical locations and attributes of Active Faults in Idaho.

2.2. **Need**

Active Faults are a key dataset needed for resource land management, community and economic development needs, infrastructure maintenance, research and analysis, business development, public safety, and more. This standard provides the active fault data for centralized access and stewardship information. This standard provides the foundation to aggregate Active Fault data for centralized access and stewardship information.

Active Fault data is needed because The Active Fault Standard supports a statewide dataset that is consistent with applicable state and national standards. It establishes the minimum attributes and geospatial database schema for the Active Fault Framework. The standard will communicate with, and may have similar attributes to, other Idaho Framework data standards. It encourages all Idaho-based agencies with geospatial active fault data to contribute to the Active Fault Framework.

2.3. **Participation in the Standard Development**

The development of the Active Fault Data Exchange Standard adheres to the ITA Policy P5030 - Framework Standards Development. The Hazards Standard Team tasked with development, invite input and comments from private, county, state, and federal organizations. As the standard is reviewed in accordance with Policy P5030 requirements, there will be opportunity for broad participation and input by stakeholders. The process will be equally broad for input on updates and enhancements to the standard. As with all Idaho Framework standards, public review and comment on the Active Fault Data Exchange Standard is encouraged.

2.4. **Integration with Other Standards**

The Active Fault Data Exchange Standard follows the same format as other Idaho geospatial framework data standards. The Active Fault standard may contain some of the same attributes as other framework standards and may adopt the field name, definition, and domain from the other standards to promote consistency.

2.5. **Technical and Operation Context**

2.5.1. **Data Environment**

The data environment is a digital vector line with a specific, standardized set of attributes pertinent to the Active Fault Framework. Active Fault data shared under this standard must be in a format supporting vector lines.

2.5.2. **Reference Systems**

The Active Fault Framework is published in the WGS 1984 Web Mercator coordinate system.

2.5.3. **Global Positioning Systems (GPS)**

Some data provided might contain geometry from GPS methods, and the provided metadata should describe this, if applicable. Some data provided might contain geometry from GPS methods, and the provided metadata should describe this, if applicable.

2.5.4. **Interdependence of Themes**

Active Faults has geometry data may be coincident with other framework data, such as Shake Map data layer(s). Attributes found in the Active Fault layer are related to the attributes found in Shake Map data layer(s). At this time, there is no enforcement of coincidence or topology relationships between Active Faults Framework and other Framework elements.

2.5.5. **Encoding**

When data is imported into and exported from the Active Fault Framework, encoding will take place to convert data formats and attributes.

2.5.6. **Resolution**

No specific requirements for resolution are specified in this standard. Resolution will be documented in the metadata. Resolution will be documented in the metadata.

2.5.7. **Accuracy**

No specific requirements for accuracy are specified in this standard. Accuracy will be documented in the metadata.

2.5.8. **Edge Matching**

No edge matching is required between jurisdictions, or between this and other framework layers.

2.5.9. **Unique Identifier**

There unique identifier is the fault_id

2.5.10. **Attributes**

Attributes for public and intergovernmental distribution are described in Section 3 of this standard.

2.5.11. **Stewardship**

Perpetual maintenance and other aspects of lifecycle management are essential to the Active Fault Framework. Details of stewards, their roles and responsibilities, and processes are set forth, or are being planned to set forth in an Active Fault Framework Stewardship Plan and related documents.

2.5.12. Records Management and Archiving

Details of records management and archiving for Active Fault Framework should be set forth in an Active Fault Framework Stewardship Plan and related documents.

2.5.13. Metadata

The Active Fault Framework metadata will describe the methods used to update and aggregate the individual Active Fault data contributions, processes or crosswalks performed, definition of attributes, and other required information. This metadata will conform to the metadata standards as set out in ITA Standard S4220 Geospatial Metadata.

3. Data Characteristics

3.1. Minimum Graphic Data Elements

The geometry of the features in the Active Fault Framework is vector line.

3.2. Optional Graphic Data Elements

Not applicable.

3.3. Standard Attribute Schema

Field Name	Data Type	Length	Description	Examples
fault_name	Text	100	Name of the fault	Beaverhead fault
section_name	Text	100	Name of the section in a fault	Lemhi section
fault_id	Text	10	Numerical identification of the fault	603
section_id	Text	1	Coded identification of the section name	a
Location	Text	100	State where fault primarily resides	Idaho
linetype	Text	50	Confidence of fault mapping	Inferred, Well Constrained
age	Text	50	Age of last fault movement	late Quaternary, undifferentiated Quaternary
dip_direct	Text	50	Angle of the fault with respect to the surface	W

Field Name	Data Type	Length	Description	Examples
slip_rate	Text	100	Average distance traveled	Less than 0.2 mm/yr
slip_sense	Text	50	Relative motion of the rock on each side of the fault concerning the other side	Normal
scale	Text	50	Scale at which the fault is mapped	1:250,000
class	Text	50	Fault class category as defined by Crone and Wheeler (2000)	A
certainty	Text	200		Good, Poor
strike	Text	50	Average strike of fault or fault section	N8˚E
fault_leng	Text		Length of fault in kilometers	55
cooperator	Text	200	Cooperating agency	U.S. Geological Survey
earthquake	Text	200	Earthquake associated with the fault	Borah Peak earthquake
review_dat	Date		Date of review	11/9/2010
fault_url	Text	254	URL of the associated archived fault report	https://earthquake.usgs.gov/ cfusion/qfault/ show_report_AB_archive.cfm ? fault_id=601&section_id=b
symbology	Text	100	Value composed of line type and age for display purposes in web application	historic Well Constrained
ref_id	Text	50	Reference ID for linking associated citations with the faults	601b
Shape_Length	Double			
archive_pdf	Text	255		

3.4. **Data Quality**

Data quality considerations for Active Faults include:

   a) All Active Faults should have Active Fault IDs.

Appendix A: References

Idaho Technology Authority (ITA). *Information and Data Policy P5000, Category: P5030 Framework Standards Development Policy.* https://ita.idaho.gov/psg/P5030.pdf

Idaho Technology Authority (ITA). *Enterprise Standards S4000 Geographic Information Systems (GIS) Data, Category: S4220 Geospatial Metadata.* https://ita.idaho.gov/psg/S4220.pdf

U.S. Geological Survey and Idaho Geological Survey, Quaternary fault and fold database for the United States. https://www.usgs.gov/natural-hazards/earthquake-hazards/faults

Appendix B: Glossary

See ITA Guideline G105 (ITA Glossary of Terms) for definitions.